

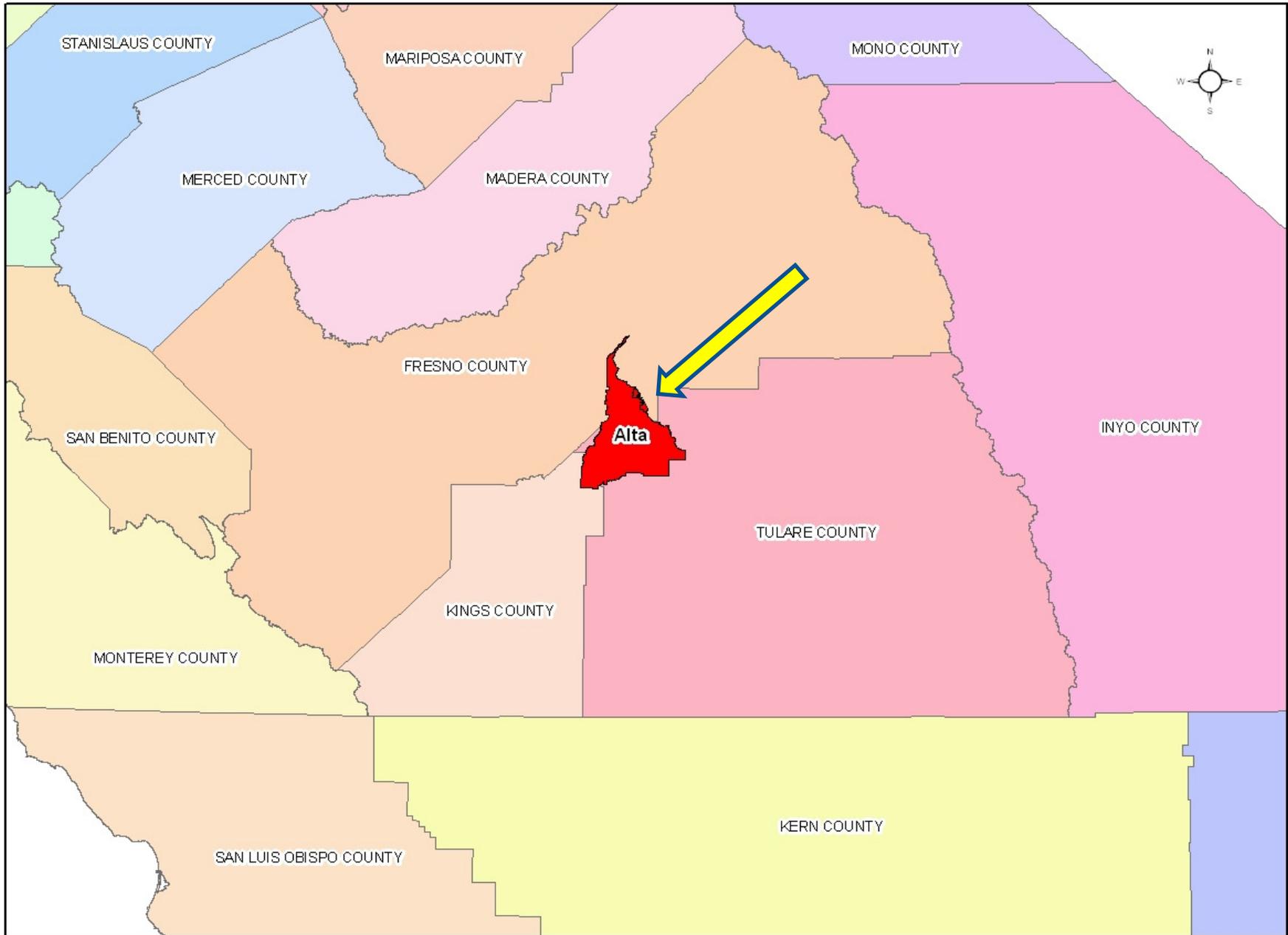


Independent Panel on Appropriate Measurement of Agricultural Water Use

Chris Kapheim, Panel Member

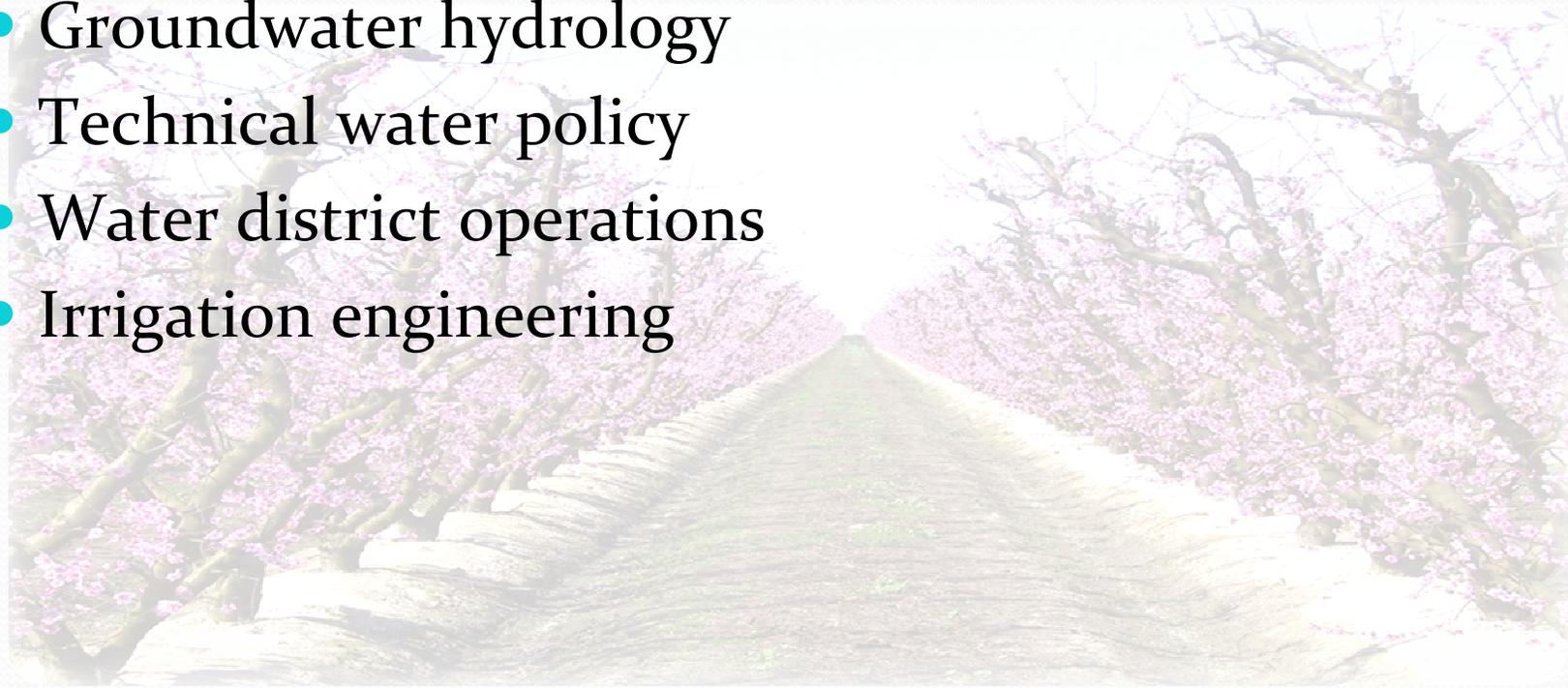
Where is Alta Irrigation District?





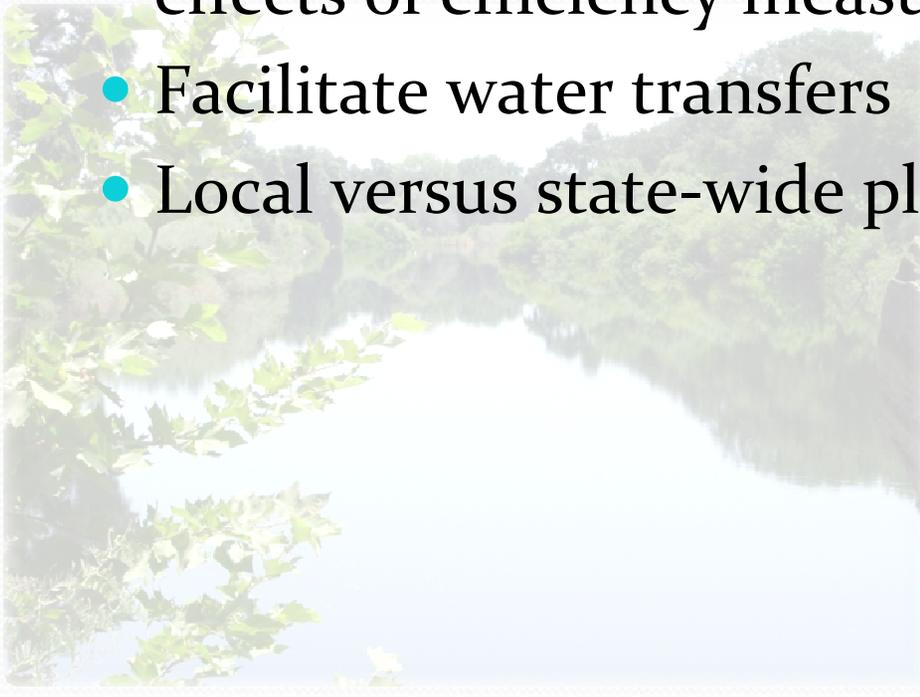
Experts to provide input and understanding

- Measurement technology and hardware
- Resource economics
- Groundwater hydrology
- Technical water policy
- Water district operations
- Irrigation engineering



Consensus Findings of Panel Members

- Cost effective measurement practices that support state and federal planning for water rights objectives
- Allow water users to undertake and demonstrate the effects of efficiency measures
- Facilitate water transfers
- Local versus state-wide planning objectives

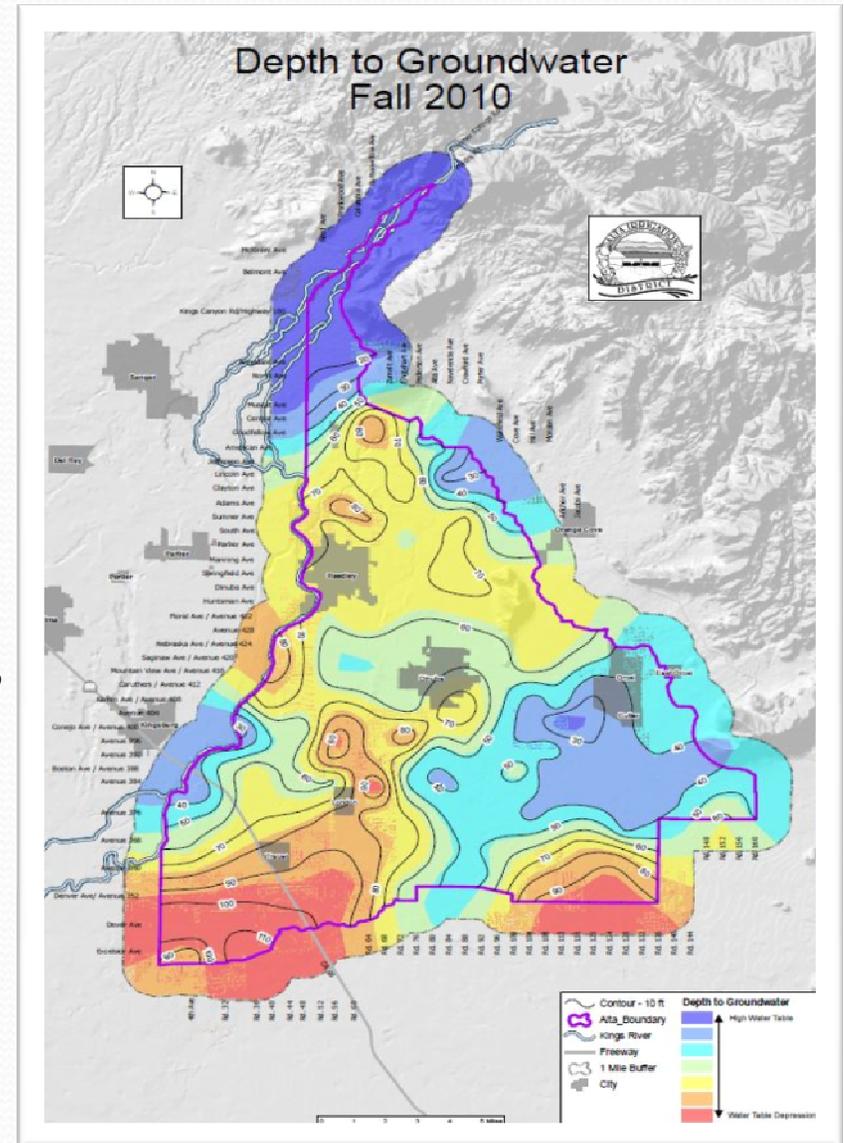


Farm-Gate Measurement

- Report aggregated farm-gate delivery data to the State
 - AB 1404, 2007 (Laird)
 - SB x7 7 Ag Water Measurement
- Current practices, estimated or directly measured, are considered sufficient to support both water transfers and efficient on-farm water management practices.
- Water Diversions versus farm-gate data?
- Intended purpose of farm-gate data (SB x7 7)?

Groundwater Use Measurement

- Employ more precise methods to compute and report net usage to the State
- State employ more precise methods such as continuous regional characterization of groundwater



Crop Water Consumption Measurement

- Satellite-generated remote-sensing



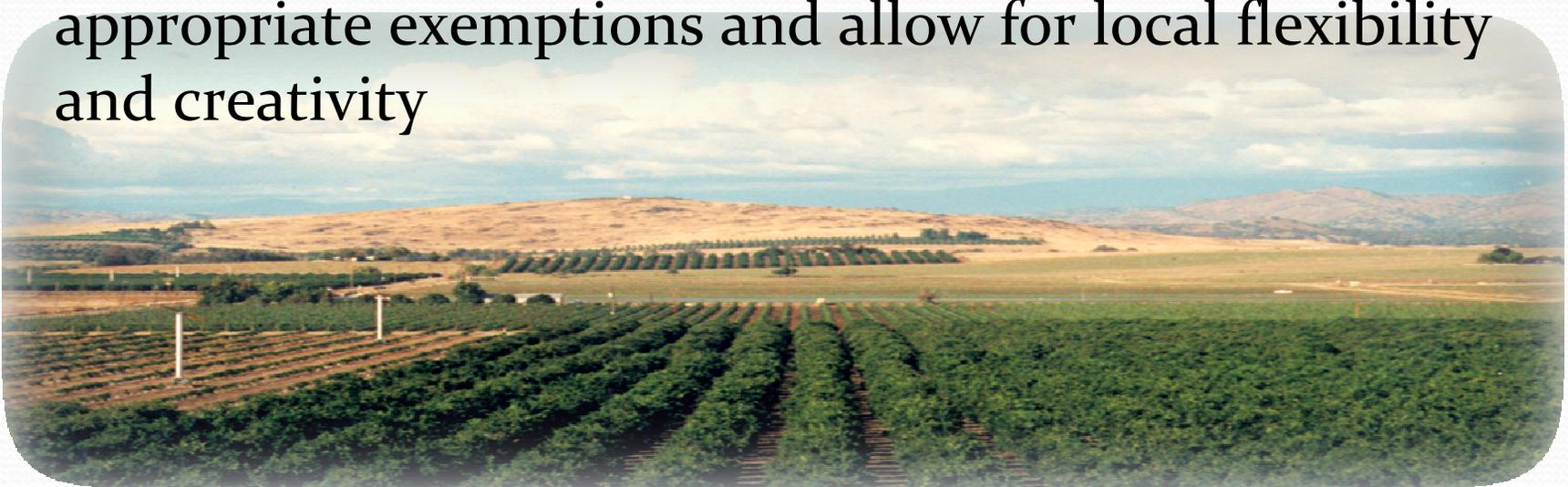
Surface Water Diversion Measurement

- Measure all major surface water diversions using the best available technologies and report data to the State

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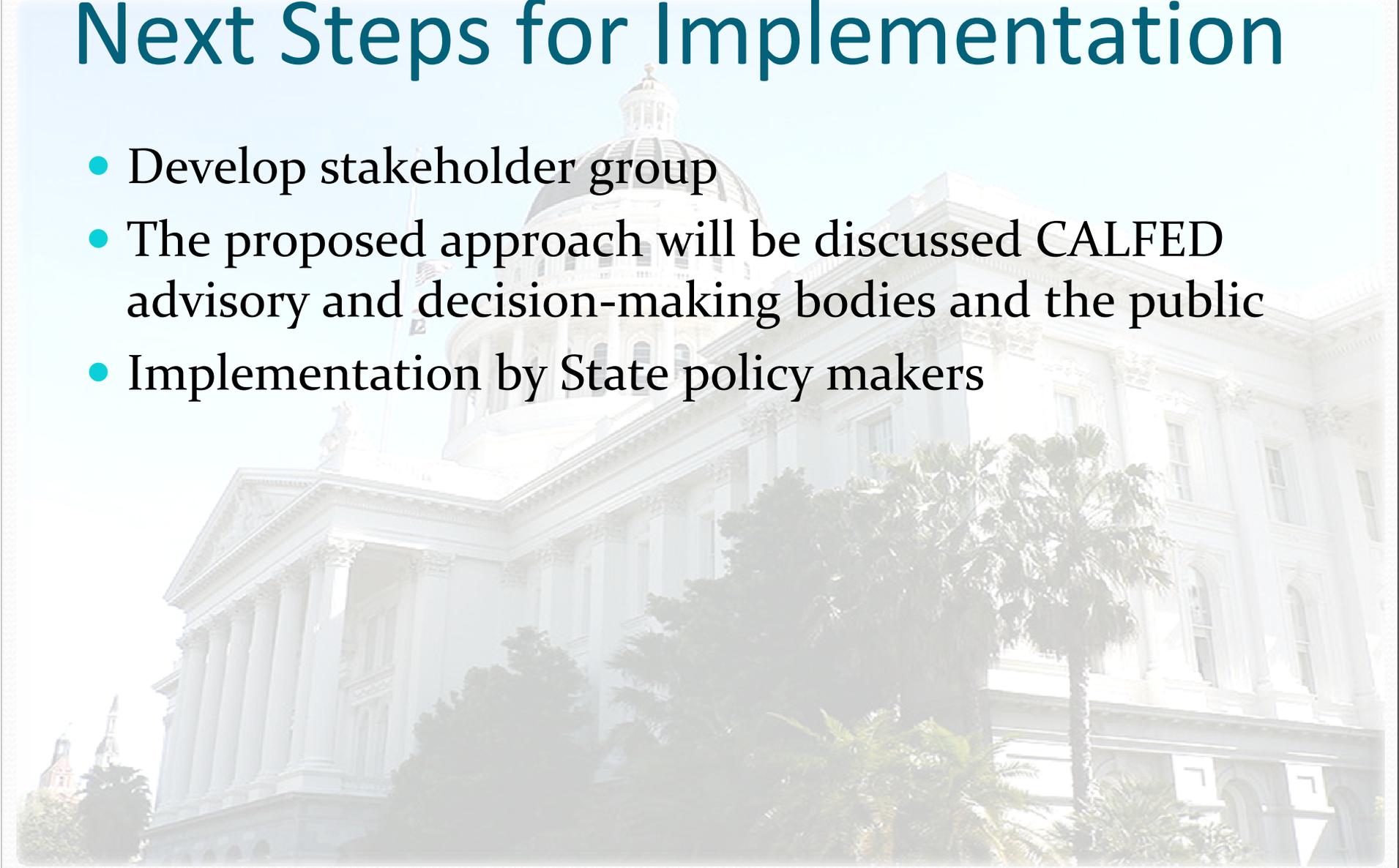
Determine Measurement Needs for Return Flows, Water Quality and in-stream flows

- Information needs to support a variety of state and federal water management objectives
- Implementation approach must be adaptive, include appropriate exemptions and allow for local flexibility and creativity





Next Steps for Implementation

- Develop stakeholder group
 - The proposed approach will be discussed CALFED advisory and decision-making bodies and the public
 - Implementation by State policy makers
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Farm –Gate Cost/Benefit – Basic, HIGH AND Highest Technically Practical

- Basic level measurement (estimated flow rates) is typically accurate to within (plus or minus) 15% by volume
- High level of measurement (rated structures) is typically accurate to within (plus or minus) 6% by volume
- Highest technically practical level of measurement (totalizing measurement devices) is typically accurate to within (plus or minus) 3% by volume
- It was not cost effective to require higher level of measurement
- High level - 25 to 30 million dollars (\$/yr)
- HTP level – 175 to 200 million dollars (\$/yr)

Measurement Objectives and Components

- Water Transfers
 - Verify transfer programs
 - Help identify potential hydrologic impacts of water transfers
 - Show past consumptive use in order to transfer that amount only
- Water Allocation
 - Fulfill water contract obligations
 - Ensure appropriate use of water/ water rights
- State and Federal Water Planning
 - Forecast and verify water supply
 - Establish water use policies
 - Update DWR Bulletin 160 and Bulletin 118
 - Facilitate evaluation of land use impacts and development activities on water-related resources

Measurement in Six Selected States:

Kansas, Oregon, Washington, Arizona, Colorado and Idaho

- Typically there is a required minimum degree of accuracy for measurement devices and methods
- Validation of accuracy standards
- Review of statutes, regulations, agency guidance documents and telephone interviews
- Preference to western states and states that use groundwater
- Evaluation of requirements for measurements
- Mechanism for imposing measurement
- Reporting and data management

Conclusion

- Diverse water interests, geology and issues in California doesn't support a one-size-fits-all approach to water management
- Local agencies have direct contact and impact on local issues and resources
- One positive approach to managing a regional data base with diverse interests is by developing an integrated regional water management planning process (IRWM)
- The IRWM planning process encourages a state and local partnership to develop and implement goals and objectives